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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,570

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Thomas Scherer

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1698

7590
Thomas J Burger
Wood Herron & Evans
2700 Carew Tower
441 Vine Street
Cincinnati, OH 45202-2917

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EXAMINER

RUBY, TRAVIS C

ART UNIT

PAPER NUMBER

3744

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,570	Applicant(s) SCHERER ET AL.	
	Examiner TRAVIS RUBY	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/26/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4, 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warner (US4445342) in view of Zimmer et al (US4013118).

Re Claim 1. Warner teaches a device for regulating the temperature of individual sections of the interior of an aircraft comprising (See Figure 1):

a controlled mixer valve (ref 140) for the mixing of engine bleed air (ref 15 and 135) with air cooler than the engine bleed air (ref 70 outputs cooled air) in order to obtain pre-tempered mixed air (Column 3 lines 23-32);

a distribution line (ref 105) connected to the outlet of the mixer valve and also connected with the individual sections by respective supply lines (ref 110 and 112) (Column 3 lines 15-22);

individual heating units (ref 180 and 205) assigned to respective individual sections and adapted to heat the pre-tempered mixed air flowing in the respective supply lines (Column 3 line 47 to Column 4 line 6);

sensors (refs 155 and 200) assigned to the individual sections for sensing respective actual temperatures in the individual sections (Column 3 lines 34-35 and 54-57);

Art Unit: 3744

transmitters (ref 197 and 154) assigned to the individual sections for identifying respective nominal temperatures in the individual sections (Column 3 lines 30-38 and 54-65);

a regulator unit (ref 196 and 153) operatively connected to the heating units, the sensors, the transmitters, and the mixer valve (Figure 1), and which controls the mixer valve dependent upon the respective nominal temperatures and the respective actual temperatures of the individual sections (Column 3 line 23 to Column 4 line 6; Column 4 lines 42-47); the regulator unit also controlling each of the heating units assigned to other individual sections with higher respective nominal temperatures according to the difference between the identified nominal temperatures and the sensed actual temperatures of the respective individual section (Column 3 line 47 to Column 4 line 6; Column 4 lines 30-47).

Warner fails to specifically teach that the mixer valve outputs pre-tempered air. However, Warner does teach a valve 140 that mixes bleed air from the engine with cooler air. It would have been obvious to one of ordinary skill in the art at the time the invention was made to move the control valve 140 to lie directly in the pipe to mix with the cooler air, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. This would allow for a better and more uniform mixing of the two air streams, which is advantageous in an air-conditioning system.

While Warner does teach post-tempering the air stream to achieve the desired compartment temperature, Warner fails to specifically teach that the pre-tempered mixed air is of a temperature which corresponds to the lowest of the nominal temperatures of all of the individual sections. Zimmer et al teaches that a pre-tempered mixed air is of a temperature which corresponds to the lowest of the nominal temperatures of all of the individual sections

Art Unit: 3744

(Figures 1 and 4; Column 3 lines 3-41). In view of Zimmer et al's teaching, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the controller of Warner to include the step of determining the lowest nominal temperature and using that temperature to regulate the temperature of the pre-tempered mixed air since this allows each section to be individually regulated according to the desired temperature. In addition, only routine skill in the art is necessary to re-program a controller to achieve the desired control scheme since the structure of the apparatus is clearly shown by Warner.

Re Claim 2. Warner teaches that the heating units in the supply lines are positioned adjacent to entrances to the respective individual sections (Figure 1; Column 3 line 47 to Column 4 line 6).

Re Claim 4. Warner teaches that the sensors (refs 155 and 200) for the respective actual temperatures are positioned in the individual sections and/or in the supply lines downstream from the heating units (Column 3 lines 34-35 and 54-57; Figure 1).

Re Claim 6. Warner teaches that the regulator unit takes into consideration the nominal temperatures, the actual temperatures and the characteristics of the respective individual sections for the control of the heating units (Column 3 line 47 to Column 4 line 6; Column 4 lines 30-47).

Re Claim 7. Warner teaches that the transmitters, the sensors, and the heating units are coupled to the regulator unit by at least one data bus (Figure 1).

Re Claim 8. Warner teaches that the regulator unit has at least one centralized section temperature regulator (ref 153) and a decentralized heat regulator (ref 196) for each heating unit (Figure 1; Column 3 lines 29-32 and lines 54-57).

Re Claim 9. Warner teaches a process for regulating the temperature of sections of the interior of an aircraft comprising (Figure 1):

identifying respective actual temperatures and respective nominal temperatures of the individual sections (Column 3 lines 30-38 and 54-65);

mixing engine bleed air and air which is cooler than the engine bleed air in order to obtain pre-tempered mixed air (Column 3 lines 23-32);

distributing the pre-tempered mixed air to all of the individual sections (Column 3 lines 15-22); and

post tempering the mixed air distributed to the individual sections with higher nominal temperatures than the lowest of the respective nominal temperatures, by heating the mixed air according to the differences between the respective nominal temperatures and the respective actual temperatures (Column 3 line 47 to Column 4 line 6; Column 4 lines 30-47).

While Warner does teach post-tempering the air stream to achieve the desired compartment temperature, Warner fails to specifically teach that the pre-tempered mixed air is of a temperature which corresponds to the lowest of the nominal temperatures of all of the individual sections. Zimmer et al teaches that a pre-tempered mixed air is of a temperature which corresponds to the lowest of the nominal temperatures of all of the individual sections

Art Unit: 3744

(Figures 1 and 4; Column 3 lines 3-41). In view of Zimmer et al's teaching, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the controller of Warner to include the step of determining the lowest nominal temperature and using that temperature to regulate the temperature of the pre-tempered mixed air since this allows each section to be individually regulated according to the desired temperature. In addition, only routine skill in the art is necessary to re-program a controller to achieve the desired control scheme since the structure of the apparatus is clearly shown by Warner.

Re Claim 10. Warner teaches taking into consideration the nominal temperatures, the actual temperatures, and respective individual section characteristics for post-tempering (Column 3 line 47 to Column 4 line 6; Column 4 lines 30-47).

Re Claim 11 & 12. Warner fails to teach setting the nominal temperatures of the individual sections manually. Zimmer teaches the use of a zone thermostat (ref 18; Column 2 lines 40) and it is well known in the HVAC art that a thermostat can be manually set by a user to achieve a desired temperature. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Warner to include a means for manually setting a zone temperature since this allows for increased user comfort in the zones by allowing a comfortable temperature to be set by the user.

Art Unit: 3744

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warner (US4445342) in view of Zimmer et al (US4013118) and in further view of Fisher et al (US5545084).

Re Claim 3. Warner as modified by Zimmer et al fails to specifically teach that the heating units are electric heating elements. Fisher et al teaches electric heaters in air supply ducts to each zone (Column 4 lines 61-63). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Warner as modified by Zimmer et al by employing electric heaters since it allows for finite temperature control close to the individual zones.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warner (US4445342) in view of Zimmer et al (US4013118) and in further view of Buchholz et al (US20010032472A1).

Re Claim 5. Warner as modified by Zimmer et al fails to specifically teach that the air which is cooler than the engine bleed air and supplied to the mixer valve comes out of a mixing chamber. Buchholz et al teaches that the air which is cooler than the engine bleed air and which is supplied to the mixer valve comes out of a mixing chamber (ref 3 Figure 1) (abstract, Paragraphs 25-26). In view of Buchholz et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to include a mixing chamber to Warner as modified by Zimmer et al's temperature regulator since it allows for precise control over the temperature of the air being conditioned. In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to move the inlet of the cabin

Art Unit: 3744

recirculation air 170 to a location before the inlet of the bleed air to create the mixing chamber before the mixing valve, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Response to Arguments

5. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 3744

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRAVIS RUBY whose telephone number is (571)270-5760. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681 or 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Travis Ruby/
Examiner, Art Unit 3744

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744